



# **Transformational Technologies/Capabilities: An Introduction**

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***<http://www.onr.navy.mil>***



# Essence of Transformation

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“We must **transform** not only our Armed Forces, but also the Defense Department that serves them — by encouraging a **culture of creativity and risk-taking**. We must promote a more entrepreneurial approach to developing military capabilities — one that encourages people to be **proactive, not reactive**, and to behave less like bureaucrats and more like venture capitalists; one that does not wait for threats to emerge and be “validated,” but rather **anticipates** them before they emerge — and develops new capabilities to dissuade and deter those nascent threats.”

— Secretary Rumsfeld, NDU, 31 Jan 02

***S&T: enables Naval Transformation***



# Naval Transformation Roadmap

- **Sea Strike**

- Persistent Intelligence Surveillance and Reconnaissance
- Time sensitive Strike
- Information Operations
- Ship-to-Objective Maneuver

- **Sea Shield**

- Theater Air and Missile Defense
- Littoral Sea Control
- Anti-Submarine warfare
- Mine Countermeasures
- Homeland Defense

- **Sea Basing**

- Accelerated Employment and Deployment Times
- Enhanced Sea-borne Positioning of Joint Assets

- **FORCEnet**

- Fully integrated and shared tactical pictures
- Integration of Force element

Supported by Naval  
Transformation Process

**Sea Warrior** –Maximizing  
human capital

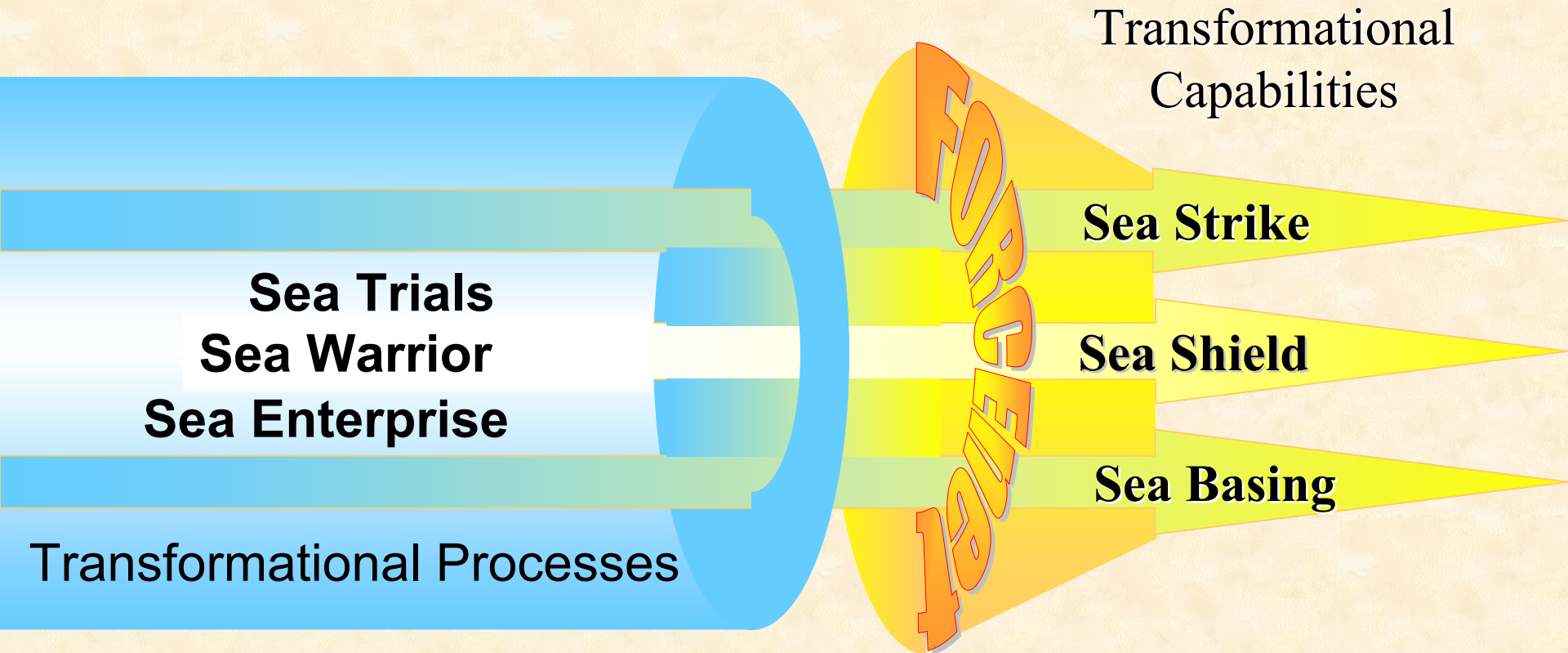
**Sea Trial** – Process for  
innovation

**Sea Enterprise:**  
Maximizing Business  
efficiencies



# Naval Transformation Roadmap

*Power and Access . . . From the Sea*



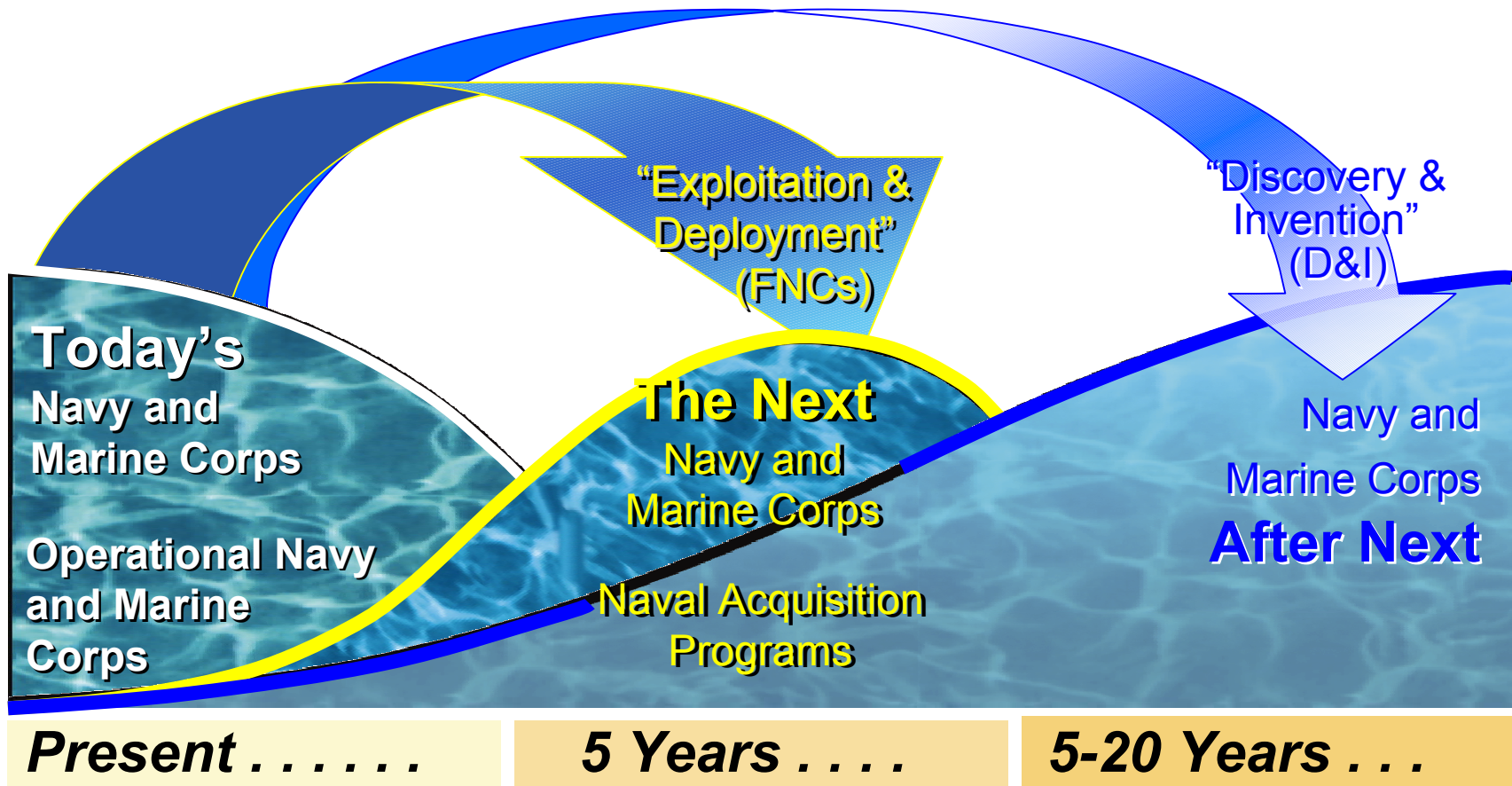
***S&T: enables both processes and new Capabilities***



# S&T does “Discovery to Deployment”

(ie both nearterm and longterm Transformation)

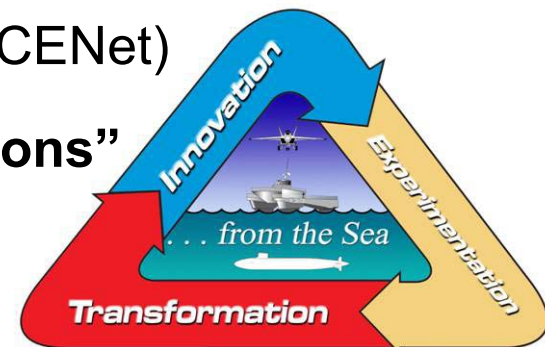
DON S&T is managed in a two part “portfolio”:





# Selected Transformational Candidates Enabled by S&T

- **All-Electric Naval Force** (warships, combat vehicles, directed energy weapons, etc.)....opens design space and options in many dimensions
- **Smaller, Affordable Weapons** (eg COTS-based components GPS cruise missile).....enables Naval Fires & “massive 1<sup>st</sup> half day Naval strike”
- **Unmanned /Robotic Platforms & Systems** (eg UCAV, large AUVs/UAVs, smaller atrittable air/sea/ground force multipliers operating collaboratively under supervisory control, etc.)
- **Time sensitive weapon/effects delivery** (eg hypervelocity weapons, loitering weapons, persistent ISR, rapid decision making, etc.)
- **Highly Netted Joint and Coalition Forces** (eg FORCENet)
- **Advanced Training/Rehearsal via “reality simulations”** (eg combined virtual and real exercise elements)
- **CBW Force Protection** (eg agile vaccines)





# BACK UPS



# DoN S&T Portfolio

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## Discovery and Invention (D&I)

Broad based S&T program, including university research

NRL base program

National Naval Responsibilities

Naval S&T Grand challenges

## Exploitation and Deployment (E&D)

Small number of Large, Capability-Based Programs, usually w/ IPTs

Future Naval Capabilities

Transformation projects/ prototypes

Experimentation

Maturation of products from D&I



# Next Navy and Marine Corps: Future Naval Capabilities

	\$M	
FNC	FY03	FY04
• Autonomous Operations	31.7	31.0
• Capable Manpower	36.8	32.2
• Electric Warships & Combat Vehicles	15.0	15.0
• Knowledge Superiority & Assurance	89.0	86.0
• Littoral Antisubmarine Warfare	73.5	72.6
• Littoral Combat & Power Projection*	59.0	60.0
• Missile Defense	40.0	40.0
• Organic Mine Countermeasures	76.2	69.2
• Fleet / Force Protection**	88.9	99.2
• Time Critical Strike	72.0	71.0
• Total Ownership Cost Reduction	35.0	32.0
• Warfighter Protection	27.9	26.8
<b>Total</b>	<b>644.9</b>	<b>634.9</b>



***Fleet/ Force Protection***



***Littoral Combat & Power Projection***

Notes: No priority expressed by order

\* Includes both EXLOG and power projection

\*\* Formerly Platform Protection; changed 24 June 02